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February 18, 1998

Attached is a copy of the Final Technical Report, "Research Instrumentation for DoD Research." This project was conducted under agreement number DAAH04-93-G-0491.

Sincerely,

A handwritten signature in cursive script, appearing to read "Monroe", is written over a horizontal line.

Joseph Monroe  
Project Director

cc: Division of Research  
Attn: Ms. Bertha Barrow,  
Grant Assistant  
Campus

*DEMS QUALITY IMPROVEMENT*

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## FINAL REPORT

The **Research Instrumentation for DoD Research** grant awarded to the Computer Science Department of North Carolina A&T State University has been instrumental in establishing the infrastructure of the department's research capability. Through the funds provided by this grant, the department has been able to:

- Place a workstation and printer on the desk of every researcher in the department.
- Create two computer laboratories for use by Computer Science graduate students.
- Supply workstations for use by graduate researchers.
- Supply laboratory furniture.
- Install file and print servers for use by all researchers.
- Install the necessary software to support a research computing environment.

With these facilities in place, the department has been able to perform work in software engineering, artificial intelligence, computer networking and communication, parallel and distributed computation, computer-human interaction, and operating systems; on projects of interest to the Department of Defense. Additionally, the development of the researching infrastructure has allowed the researchers within the department to expand their ability and seek additional research funding. Researchers in the Computer Science Department have received numerous research grants in excess of \$5,000,000 from agencies of the Department of Defense, other federal agencies and industry. The equipment provided by the Research Instrumentation grant continues to provide the department with the ability to perform further research and seek continued funding. For a listing of all items of equipment actually acquired by name, manufacturer, cost, and description; please see attachment.

Attachment:

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## Research Instrumentation for DoD Research

### Research Equipment Purchases

The following detailed list of research equipment was purchased from Funds supplied by the Research Instrumentation for DoD Research grant. This equipment allowed the Computer Science Department to supply workstations and software for the faculty and graduate researchers.

qty	price	cost	description	vendor
1	\$98,200.00	\$98,200.00	7 Sun workstations, server, 2 printers & software	Transeeant Inc.
8	\$3,866.75	\$30,934.00	8 Pentium 90MHz workstations	MicroAge Computer Center
8	\$3,650.25	\$29,202.00	120 MHz Multimedia workstations	Dilan
8	\$3,258.00	\$26,064.00	Zenith Pentium 133	Alphanumeric Systems
2	\$4,872.00	\$9,744.00	P75 Notebook PC	MicroAge Computer Center
6	\$1,263.00	\$7,578.00	Lexmark Optra R+ printer	Inacom Information Systems
1	\$5,119.00	\$5,119.00	IBM ThinkPad 755CX with 810 MB disk	Information Decisions, Inc.
2	\$2,365.00	\$4,730.00	Optra Lx+ printers	Inacom
1	\$3,921.00	\$3,921.00	Powerbook 540C 12/500 with modem	Apple Computer Inc.
2	\$1,867.00	\$3,734.00	Lexmark Optra LX+ printer	Inacom Information Systems
5	\$657.95	\$3,289.75	DigiView SVGA 17" Monitors	MicroAge Computer Center
10	\$249.00	\$2,490.00	1.6 GB Western Digital Caviar Hard Drive	The Computer Express
1	\$2,000.00	\$2,000.00	WinProlog 10 user license	Logic Programming Associates, Ltd.
1	\$1,878.00	\$1,878.00	Optra L laser printer	CDW Computer Centers, Inc.
4	\$450.00	\$1,800.00	Complete Mobile Robot Kit	AK Peters, Ltd.
15	\$101.00	\$1,515.00	8MB memory module for Lexmark Optra printer	Logical Choice
10	\$150.00	\$1,500.00	Hummingbird Exceed ver. 4.1	EMJ America
1	\$1,499.95	\$1,499.95	Pentium 100 workstation	The Computer Express
1	\$1,376.00	\$1,376.00	32MB Visiontek RAM for ThinkPad 755CX	Information Decisions, Inc.
1	\$1,323.22	\$1,323.22	4039 10plus laser printer	MicroAge Computer Center
1	\$1,000.00	\$1,000.00	WinProlog additional 10 user license	Logic Programming Associates, Ltd.
2	\$498.00	\$996.00	Duplex printing option for Lexmark Optra LX+	Inacom Information Systems
5	\$195.00	\$975.00	Ada95 PDS for Windows95	RR Software, Inc.
1	\$975.00	\$975.00	HP Scanjet 4C scanner	Logical Choice
1	\$950.00	\$950.00	SiCStus Prolog	Swedish Institute of Computer Science
1	\$922.00	\$922.00	Macintosh Quadra 630 4MB HD 250	NCA&TSU Bookstore
1	\$900.00	\$900.00	Microsoft Frontpage ver 1.1 Web server 10-user	Logical Choice
1	\$899.00	\$899.00	Laserwriter 4/600 PS	MacWarehouse
5	\$150.00	\$750.00	Hummingbird Exceed ver. 5.0	EMJ America
2	\$375.00	\$750.00	Ada95 PDS for 80386 32bit DOS extender	RR Software, Inc.
12	\$60.00	\$720.00	upgrade to ver. 4.1 of Hummingbird Exceed	EMJ America
2	\$337.35	\$674.70	8 MB memory option	MicroAge Computer Center
250	\$2.51	\$627.50	Mouse pads	Moustrak, Inc

# Research Instrumentation for DoD Research

qty	price	cost	description	vendor
20	\$31.09	\$621.80	Microsoft Office for Windows license	ASAP Software Express, Inc.
6	\$100.00	\$600.00	PC TeX user licenses	Personal TeX, Inc
1	\$511.94	\$511.94	HP Deskjet 660C color printer	MicroAge Computer Center
4	\$95.00	\$380.00	Support for Ada95 PDS for Windows95	RR Software, Inc.
19	\$18.29	\$347.51	Microsoft Windows95 NC MVP license	ASAP Software Express, Inc
1	\$325.00	\$325.00	MAXTOR 1.6GB 3.5" hard drive	Logical Choice
3	\$100.00	\$300.00	PC TeX user licenses	Personal TeX, Inc
1	\$299.00	\$299.00	PC TeX for Windows95 departmental license	Personal TeX, Inc
1	\$299.00	\$299.00	PC TeX for Windows departmental license	Personal TeX, Inc
1	\$289.00	\$289.00	upgrade to 32 MB RAM	The Computer Express
1	\$276.00	\$276.00	Apple color plus 14" display	NCA&TSU Bookstore
1	\$241.00	\$241.00	MAXTOR 850MB hard drive	Logical Choice
2	\$107.00	\$214.00	Powerbook battery	Apple Computer Inc.
2	\$104.00	\$208.00	Microsoft Frontpage ver 1.1 Web server 1-user	Logical Choice
20	\$10.00	\$200.00	CRT program	Van Dyke Technologies
1	\$197.53	\$197.53	Microsoft Mail v3.2 10 User License	MicroAge Computer Center
6	\$30.68	\$184.08	Microsoft mouse	MicroAge Computer Center
1	\$168.00	\$168.00	Powerbook PCMA Expansion module	Apple Computer Inc.
1	\$167.00	\$167.00	Powerbook/DOS companion	Apple Computer Inc.
1	\$166.00	\$166.00	MS Office Pro for Windows 95 - CD	MicroAge Computer Center
1	\$166.00	\$166.00	MS Office Pro for Windows 95 - 3.5 diskette	MicroAge Computer Center
8	\$20.73	\$165.84	Microsoft Access license, latest version	ASAP Software Express, Inc.
1	\$150.00	\$150.00	1 year support for Ada95 PDS	RR Software, Inc.
1	\$149.99	\$149.99	3 year extended service for workstation	The Computer Express
1	\$149.95	\$149.95	Microsoft Office MAC office 4.2	NCA&TSU Bookstore
5	\$29.95	\$149.75	100 3.5" diskettes formatted for IBM PCs	CompUSA
1	\$125.00	\$125.00	Omnipage pro upgrade	Logical Choice
1	\$110.30	\$110.30	Microsoft Windows95 3.5" diskettes	MicroAge Computer Center
1	\$107.00	\$107.00	Powerbook AC Adapter	Apple Computer Inc.
8	\$11.96	\$95.68	Belk 10' bidirectional parallel printer cable	CompUSA
1	\$89.98	\$89.98	Windows 95 upgrade CD ROM version	CompUSA
1	\$84.00	\$84.00	Apple Ethernet CS twisted pair card	NCA&TSU Bookstore
1	\$72.00	\$72.00	Apple design keyboard	NCA&TSU Bookstore
1	\$67.00	\$67.00	Powerbook Battery Recharger	Apple Computer Inc.
1	\$55.00	\$55.00	Microsoft Office documentation	ASAP Software Express, Inc.
1	\$43.00	\$43.00	Powerbook File Assistant	Apple Computer Inc.
1	\$40.00	\$40.00	documentation for Hummingbird Exceed	EMJ America
1	\$40.00	\$40.00	documentation for Hummingbird Exceed	EMJ America
1	\$39.95	\$39.95	Mobile Robot documentation	AK Peters, Ltd.

# Research Instrumentation for DoD Research

qty	price	cost	description	vendor
1	\$37.50	\$37.50	Teac 1.44 MB floppy disk drive	MicroAge Computer Center
2	\$16.90	\$33.80	Powerbook video adapter cable	Apple Computer Inc.
1	\$30.00	\$30.00	Microsoft Windows95 documentation	ASAP Software Express, Inc
1	\$30.00	\$30.00	Campus Software set	Apple Computer Inc.
1	\$30.00	\$30.00	Art Setup for mouse pad	Moustrak, Inc
1	\$29.95	\$29.95	Parallel printer port expansion card for an IDE bus	CompUSA
1	\$18.43	\$18.43	Microsoft Office for Windows CD	ASAP Software Express, Inc.
1	\$13.00	\$13.00	printer cable for connection to a PC	MicroAge Computer Center

# Research Instrumentation for DoD Research

## Laboratory Renovation Purchases

The following detailed list of equipment show the items for laboratory renovation that were purchased from Funds supplied by the Research Instrumentation for DoD Research grant. This funding allowed the Computer Science Department to create two large computer laboratories and equip them with the necessary furniture, wiring and power.

qty	price	cost	description	vendor
1	\$22,260.00	\$22,260.00	15 Computer tables	Piedmont Office Suppliers Inc.
29	\$328.60	\$9,529.40	Chairs, Girshberger	United Office & Business Concepts
29	\$276.54	\$8,019.66	36" overhead shelf w/ flappers	United Office & Business Concepts
1	\$6,855.86	\$6,855.86	Faculty desks and filing cabinets	United Office
1	\$5,795.00	\$5,795.00	Computer monitor projection system	A&V Company
29	\$197.19	\$5,718.51	24x36" work surface tables	United Office & Business Concepts
29	\$151.47	\$4,392.63	Articulating keyboard holder	United Office & Business Concepts
4	\$614.62	\$2,458.48	Synoptics 810M 10Base-T hub w/ 8 RJ-45 ports	Anixter
5	\$475.00	\$2,375.00	APC Back-UPS Pro 1400 120V	Inacom Information Systems
1	\$2,340.00	\$2,340.00	TPMIM-24 10BaseT 24 port MIM	Cabletron Systems
15	\$132.00	\$1,980.00	Midback task chair, no arms	Piedmont Office Suppliers Inc.
1	\$1,901.64	\$1,901.64	File cabinets	MacThrift
1	\$1,670.55	\$1,670.55	Shredder and binder	United Office
29	\$55.80	\$1,618.20	Chair arms, Girshberger	United Office & Business Concepts
4	\$369.00	\$1,476.00	APC Back-UPS Pro 1000 120V	Inacom Information Systems
7	\$210.00	\$1,470.00	7000 feet of Cat 5 plen cable part no. 03-74357-L	Carolina Cable and Connector, Inc.
3	\$272.53	\$817.59	APC Back UPS Pro 650	MicroAge Computer Center
50	\$14.95	\$747.50	All Purpose Security Kit	MicroAge Computer Center
1	\$606.46	\$606.46	Materials for Installation of wiring in Graham Hall	Globe Communications, Inc.
1	\$507.60	\$507.60	Labor for Installation of wiring in Graham Hall	Globe Communications, Inc.
1	\$475.00	\$475.00	APC Back-UPS Pro 1400 120V	Inacom Information Systems
1	\$425.00	\$425.00	desk shipping	United Office & Business Concepts
1	\$410.00	\$410.00	cipher door lock	Hardware Distributors Inc
1	\$360.00	\$360.00	Omega NEC MT case	A&V Company
175	\$1.95	\$341.25	Cat 5 patch cable 1.5' part no. 512002M-1.5	Carolina Cable and Connector, Inc.
70	\$4.25	\$297.50	Cat 5 patch cable 10' part no. 512002M-010	Carolina Cable and Connector, Inc.
60	\$4.75	\$285.00	Cat 5 patch cable 15' part no. 512002M-015	Carolina Cable and Connector, Inc.
70	\$3.00	\$210.00	Cat 5 patch cable 5' part no. 512002M-005	Carolina Cable and Connector, Inc.
80	\$2.50	\$200.00	Cat 5 patch cable 3' part no. 512002M-003	Carolina Cable and Connector, Inc.
15	\$8.75	\$131.25	Cat 5 patch cable 35' part no. 512002M-035	Carolina Cable and Connector, Inc.
15	\$8.25	\$123.75	Cat 5 patch cable 30' part no. 512002M-030	Carolina Cable and Connector, Inc.
15	\$6.90	\$103.50	Cat 5 patch cable 20' part no. 512002M-020	Carolina Cable and Connector, Inc.
2	\$17.95	\$35.90	Computer service tool kit	Jameco